

Exercise Testing

Indications

- Pre rehabilitation programme
- Assessment of exercise related cardiac symptoms (palpitations, dizziness, pain etc).
- Assessment of heart rate response for rate-responsive pacing
- Assessment of exercise tolerance for highly selected patients (e.g. with valve disease, heart failure or HOCM)
- Assessment of patients with symptoms post PCI

N.B. In-patients are not suitable unless they:

- Have had intravenous infusions discontinued
- Have been pain free 4 hours

Contraindications

- Unstable angina (with continuing rest pain).
- Acute (myo) pericarditis.
- Acute or serious systemic illness or frail or uncooperative patient. Uncorrected anaemia.
- Severe aortic stenosis (symptomatic with valve gradient >40 mmHg by cardiac ECHO), acute pulmonary embolus, aortic dissection.
- Uncontrolled hypertension ($>200/110$).
- Severe, symptomatic left ventricular dysfunction (i.e. overt heart failure).
- Occasionally for pre-surgery assessment
- Other significant cardiac disease (pulmonary hypertension, severe hypertrophic cardiomyopathy).
- ECG difficult to interpret, (e.g. bundle branch block, digoxin, Wolff-Parkinson-White syndrome, paced).

N.B. Some of these contraindications are relative. Exercise testing can sometimes be done after discussion with and in the presence of a trained Cardiologist.

Reasons for an Exercise Test

An exercise test may be required by some organisations such as the DVLA (Driver and Vehicle Licensing Agency) and UK Civil Aviation Authority to assess fitness to drive or fly.

End-points

- Symptoms: chest pain, breathlessness, faintness or fatigue, so that the patient is unable to continue.
- Fall in systolic blood pressure (>10) especially if pale and clammy.
- Onset of sustained ventricular or supraventricular arrhythmias.
- Chest pain and ST depression >2 mm below baseline level. (ST depression is measured at [Jpoint+ 80msec]).
- ST depression >2 mm in the absence of symptoms, or ST elevation >1 mm, not over infarct site.
- Increasing complex ventricular ectopy or non-sustained ventricular tachycardia (especially if evidence of ischaemic heart disease).
- Increasing AV block (marked first degree or higher grade) or widening of the QRS complex.
- Technical difficulties: inability to record ECG or measure blood pressure.
- Patient asks to stop.
- Blood pressure increasing to >220/110 during the test.

Results entered into Notes

- Presence of symptoms.
- Duration of exercise.
- Reason for stopping.
- Peak heart rate and its percentage of maximum predicted for age.
- Blood pressure. Any fall in blood pressure.
- Amount and shape of ST-segment depression or elevation
- Time for ST depression to recover to normal.
- Anything else relevant (e.g. arrhythmias).